Mark III

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This is your owner's manual. The following pages will describe as succinctly as possible the assembly of your new Delphi. Although some operations are self explanatory, we strongly suggest you read this booklet to better understand the vital roles so precisely accomplished by the different key components.

A first grade turntable like your new Delphi or any other turntable for that matter although built with the very finest materials is always somewhat vulnerable. Unlike speakers or amplifiers, turntables require mechanical expertise to reach the high standards of accuracy they are capable of. It is important to set up your Delphi with the utmost care so it can effectively transmute record groove modulations into outstanding musical performance and enjoyment!

FOREWORD

Total accuracy is the only key to success in this matter where the quality of the results can only be as good as the worst level of calibration in any step whether it is suspension calibration, tone arm installation or cartridge alignment.

This booklet is divided in three sections, the what if..., the how to... and finally the what to do...

The what if... is an informative section about mechanical/sound interaction which will give a comprehensive understanding of the different components and their effect on sound.

The how to... is the heart of the turntable set up which exposes thoroughly the procedures to achieve the very best results.

The what to do... will give you a quick check list usefull for trouble shooting and maintenance.

WHAT IF...

In this section, we will often refer to vibration. The stylus vibrates when following the complex record groove and transfers this energy into an electrical signal which will become the sound you hear. This vibration however is also a source of potential problems when ignored or misunderstood. In a turntable design everything is about vibration and mostly keeping it away from the minute signal emerging from the record and stylus interface. There is a reason for everything in your Delphi and this section is about understanding the mechanical interactions and their effect on sound.

...the leveling feet

They control the horizontal plane of the turntable and they are terminated in a convex shape. The leveling of the turntable is vital to its performance. **An improperly leveled turntable will have an effect on the platter spindle and bearing by increasing its drag.** This increased drag will be similar to something slowing down the spindle. A loss of momentum will occur and cause the sound to smear loosing punch and focus. **The increased drag will also mean more noise accessing through the platter's spindle to the stylus playing the record groove.** The effect can be sufficient to overlap with and eliminate the subtle information in the record groove. The convex shape offers a very small surface contact. This will have the effect of reducing the access of external vibration to the turntable.

...the suspension system

If improperly calibrated many problems will emerge from this innocent looking system. The effect of the suspension system on the sound is so great we could compare it to the sonic differences between a dead sounding recording studio and a live and spacious sounding concert hall

The reason behind this is simple. All we have to understand is that very subtle signals like the sustain ringing of a bell, the echo of the concert hall, the light and delicate sound of chimes or any other breeze like signals are of a very low amplitude which could be equaled or impaired by other signals like unfiltered energy accessing through an improperly set up suspension system. This would have the unfortunate effect of being picked up by the stylus playing the record groove resulting in an increased noise floor resulting in cancellation of low amplitude signals. The suspension set up will also have a tremendous effect on the stability of the turntable system while playing the record.

...the bearing assembly

A few problems can effect the performance of the bearing and spindle system. The first is one of handling when inserting the spindle in the bearing. If not inserted vertically nicks could occur on the upper bushing. Another is lack of lubrication. With time, the two problems would have a relatively similar effect on sound. The nicks will create a breaking effect which is sonically similar but potentially worst than what was described in the leveling feet section. The lack of oil over time will allow the bushing surface to become sticky which will accelarate the wear of both the bushing and the spindle. These two problems bear a direct impact on noise increase. Some lubricating oils are not appropriate to be used in the bearing well. Their viscosity will change with time and sticky deposits will coat the surface of the bushings causing inconsistent friction, sonically this would translate into irregular wow and possibly flutter.

...the drive belt

An oily drive belt will keep the drive system from responding sharply to varying loads. On a record the load is the continiously changing modulations in the groove. In order to maintain the platter's momentum a positive drive is absolutely required. A similar problem also develops with time when the belt looses its properties thus loosing its ability to effectively transmit the motor to platter energy. The impact on sound can be serious: lack of punch, loss of focus.

...the record clamp

With the purpose of maximizing the record's stability and mechanical energy transfer through the mat, the record clamp will cause damage to your records if overtightened. The outer edge of the record could be lifted off the surface of the mat causing sonic problems due to the non-horizontal plane. Simultaneously the energy transfer to the mat would be reduced causing the sound to become harsh.

...the phono lead

When improperly or not secured to the plinth the phono lead will exert a tension on the suspension keeping it from effectively filtering unwanted energy. This energy will go past the suspension system and effect the stylus playing the record groove causing confusion in the sound you hear. This will also smear the sound. Another problem is one of feed back where the phono lead offers a direct link to the subchassis.

...the hardware

The mounting hardware for the tone arm or the cartridge also bears an important responsability with regard to the sound quality. A muddy sound can often be related to this. **Loose mounting screws increase vibration resulting in muddiness of the sound you hear.**

...the cartridge alignment

This final element in the what if... section is often taken with a grain of salt. Being in the ball park is far from being sufficient: for this the calibration has to be dead in the middle of home plate. **Minute positionning of the cartridge away from the exact position in any direction bears a tremendously detrimental impact of the sound quality... beware!**

HOW TO ...

... pack and unpack your Delphi

- Remove the inner box by lifting it straight up and out. Open the flaps on both ends and slide out the styrofoam packaging.

- Remove the straps binding the packaging together.

- Select a clean flat work surface, like a table or countertop, for setting up the turntable.

- lift the styrofoam cover straight up so as to protect the corner reinforcement.

- Remove the dust cover from the upper section of packaging and set it aside for a later installation.

- Remove the upper section of packaging leaving all the accessories in place and set it near by.

- Remove the acrylic base plate from the lower section of packaging and place it on your work table.

Note 1: Lift the acrylic base straight up so as not to damage the platter's spindle protruding through.

Note 2: All the accessories are positionned strategically in the packaging to prevent them from coming loose and possibly damaging the turntable during shipping. **When shipping the turntable it is important to place each item in its right place.** To that effect, simple diagrams have been affixed to the inside end covers of the inner box.

Note 3: Your ORACLE's packaging has been designed to protect it from the abusive handling normally encountered during shipping. Save all packing materials for use in any future shipping.

- Locate the hinges in the upper section of the packaging and the appropriate allan key (1/8") from the tool kit.

- Seperate the hinges from their supports and set them in the dust cover for a later assembly.

- Mount the hinge supports to the acrylic base. The hight ajustement back plates must point toward the rear of the unit.

... install the tone arm and phono cartridge

- Remove the arm mounting board.

- Install the tone arm following the manufacturer's recommendations and secure the hardware firmly.

Note 1: With the foam blocks supporting the subchassis, the tone arm and cartridge installation will be done with more stability making all adjustements safer.

Note 2: The cutting of the arm board can sometimes be troublesome on top of being a potential hazard. The use of an adequate tolling is important to both accuracy and safety. Oracle can supply a pre-drilled arm board for mostly any tone arm available.

- Properly secure the arm mounting hardware.

- Use steel or aluminium screws to mount the cartridge for maximum rigidity.

- Tighten the screws so the cartridge can be moved in the headshell.

... precisely align the phono cartridge

- Block the platter to prevent it from turning using the rubber strips supplied. **Do not use tape!**

- Place the calibrator disc on the platter over the mat.

- Aim the alignment line with the pivot center of the tone arm.

- Move the tone arm over and cue it down on the alignment grid.

- Check for the horizontality of the arm tube with the surface of the platter and adjust the height accordingly.

- Bring the tone arm over the center of the grid again and lower it. The stylus tip must fit in the pin hole in the center of the grid. If not, position the cartridge so it does.

- Precisely align the body of the cartridge with the lines on the grid.

- Secure the cartridge screws and repeat the previous operation.

- Check the azimuth by lowering the stylus over the black portion on the calibrator disc. The reflection will help determine if the cartridge is off its vertical axis.

Note : The azimuth is the verticallity of the stylus relative to the record groove when viewing it from the front. The proper setting is 90^{o}.

- Check the stylus pressure and adjust to specifications.

- Install the stylus guard to complete the assembly of your Delphi. Do not install the phono lead at this time.

- Lift the subchassis from the styrofoam blocks and set it aside safely.

- Remove the styrofoam blocks from around the suspension posts.

... calibrate the suspension

<u>Step one</u> Pre-loading the spring.

Note 1: The spring holder has a deep thread to offer a positive hold of the spring.

Note 2: The reference to clockwise or counter-clockwise must always take into account viewing the spring from above.

Note 3: By hand the spring can only be rotated counter-clockwise in its holder but, using needle nose pliers, it can be held near the tip at the wider end. It is then possible to move it backwards. If this can not be done, rotate the spring counter-clockwise until it comes out and reinstall it from under the holder to the recommended adjustement. Carefully install the spring so it is threaded straight in the holder.

- Adjust the spring so three coils are showing below the holder.

Note 4: Before installing the spring back into the module, pull on the spring at the wider end to stretch it, this will allow it to seat well in the thread.

Step two Preparing a spring module.

Note: The upper spring damper is mounted on a nylon sleeve.

- Install the two felt dampers in a criss-cross pattern in the slotted section of the stem.

- Install the upper spring damper over the stem.

- Install the sorbothane damper over the spring holder and seat it well around the lip.

- Insert the spring assembly in the suspension housing.

Step three Mounting the modules.

- Install the suspension modules on the stems over the upper spring damper.

Note 1: There are five springs supplied with the turntable which are coded as follow from the weakest to the strongest: grey, yellow, red, green, blue. The coding is done on the inside at the wider end of the spring. The following is the standard set up from the factory:

Grey front left module
Yellow rear left module
Green right module

The red and the blue are supplied as extras.

Note 2: The standard spring combination will accomodate most tone arms.

- Install the subchassis over the suspension modules.

- Install the platter without the drive belt.

Step four calibrating the suspension.

Note 1: Before moving into this step the mat, an old record and the record clamp must be in place on the platter.

Note 2: Do not install the drive belt nor the phono lead to prevent any bias in the interpretation of the calibration.

- Locate the suspension gauge in the documentation enveloppe. Punch it out of the card. Do not consider "A" nor 1 & 2.

- Place the gauge on the acrylic base with the "B" side against the lock nut.

Note 3: With the spring adjusted as per step one, the bottom of the suspension housing should be well above the "B" step on the gauge. If it falls below, this is an indication that the spring used is not suited for this tone arm application, it is too weak. Identify the color code and use the next stiffer spring. With a new spring start the procedure again from step one.

Note 4: Always start the calibration with the module near the tone arm then move to the rear left and finally to the front module.

- Rotate the spring counter-clockwise by increments of ¼ of a turn. Apply a pressure on the record clamp to stretch the spring prior to taking a new reading.

Note 5: To make this operation easy, one hand should hold the suspension housing to keep it from turning while the other is rotating the spring. Apply a downward pressure at the same time to facilitate the rotation.

- For the first round repeat the operation until the suspension housing is 3 mm (1/8" inch) above the "B" step on all three modules. For the second round, reduce the increments to 1/8 of a turn or less until the housing touches the gauge lightly.

Note 6: In the event that the housing goes below the "B" step, start the procedure from step one again.

Note 7: Once the proper adjustment is achieved, it is important as a final check to verify the relative position of the bottom of the spring with its holder. This can be done by simply lifting the suspension housing just enough so you can see the spring. If you can see the spring anywhere from almost flush to the spring holder to up to 3 coils out, the spring is in a safe range and the risk of collapsing is nonexistant. If the spring can not be seen showing below the holder a carefull inspection should be performed on this spring to make sure it is still at less than ½ turn inside the holder. This is an indication that the spring is approaching its limits. The use of a softer spring should be considered. Failing to do so could eventually cause the spring to slip out of its holder thus causing potential damages to your record and your phono cartridge!

... dress the phono lead

- Attach the phono lead to the base of your tone arm.

- Secure the lead to the strain relief clip below the plinth.

Note 1: The lead must create a loop from the base of the tone arm to the strain relief clip. This is done to prevent any interference of the lead with the suspension system.

Note 2: In some applications, the phono lead might be too stiff, it is then recommended to split the molded wire from the plug to the strain relief.

Note 3: If the loop is too long, the lead might come in contact with the table below the turntable. If it is too short, it will keep the suspension system from moving freely. In both cases, it will be detrimental to the sound.

- Locate the oil vile in the upper section of the packaging and pour the content in the bearing well.

... install the drive belt

Note 1: To reduce contamination problems, wash your hands prior to handling the drive belt.

- Locate the drive belt in the upper section of the packaging.

- With the platter up side down, place the belt around the hub.

- Bring the platter over the bearing and lower it straight down holding the belt stretched.

- Guide the drive belt around the motor pulley when the spindle first stop over the oil in the bearing.

Note 2: Do not attempt to rotate the platter at this time since it is not yet fully seated against thrust pad. The spindle will first rest over the oil creating an hydraulic lock and the weight of the platter will gradually allow it to seat against the thrust pad. This whole process should be completed within one minute.

Note 3: In the event that the drive belt becomes contaminated, clean it with denatured alcohol. Clean the motor pulley and the drive hub at the same time.

... remove the platter with the drive belt installed

- Place one hand at the rear over the motor, one hand at the front, lift the platter about 25 cm (one inch) and with one finger pull the belt off the motor pulley, then lift the platter straight up.

... connect the power supply

- Plug the supply output to the turntable input receptacle at the rear of the turntable.

- Plug the input cord to an AC outlet.

Note: Keep the power supply away from signal carrying leads.

... adjust the 33 and 45 speed

Note 1: The pitch control potentiometer is accessible through the left side cover on the function selector module at the front of the turntable. Rotating this potentiometer will effect both speeds simultaniously.

Note 2: The individual speed adjustement potentiometers can be reached through the motor base from the rear of the unit.

Note 3: The inner circles of strobe marks on the calibrator disc are to be used with a supply of 50 Hz. The circle near the center is for 45 RPM, the other one is for 33 RPM. The outer circles are to be used with a supply of 60 Hz. The outermost circle is for 33 RPM, the one next to it is for 45 RPM.

- Place the calibrator disc on the platter.

- Select the 33 speed and check for accuracy, if a slight adjustment is required, do not correct it yet.

- Select the 45 speed and check for accuracy.

- If both speeds need to be corrected, select the 33 speed again and using the small screwdriver supplied with the tool kit, rotate the pitch control potentiometer until the strobe mark on the calibrator disc come to a standstill position.

- Check the 45 speed again, if a small correction is still required, rotate the 45 RPM potentiometer through the motor base with the small screw driver until the strobe marks come to a standstill position.

... install the dust cover

- Remove the protective pellicle from around the dust cover.

- Attach the hinges using a phillips screw driver.

- Slide the flaps in the hinge bases secured to the acrylic base.

... operate the record clamp

- Tighten the clamp so the record is pushed flat against the mat.

Note 1: This will be achieved before feeling the clamp is tight.

Note 2: An overtightened record clamp will force the edge of the record to lift off the mat.

Note 3: Damages will occur to your albums when tightening the record clamp too much.

... level your Delphi

Your turntable is now ready to be moved to its final emplacement. It is most probable that the level will differ with the location where the turntable was set up.

- Level the acrylic base by turning the leveling feet. Use the subchassis spirit level to achieve this final adjustment since the relative level has been already been established between the subchassis and the acrylic base.

WHAT TO DO ...

... if the turntable does not start and the speed indicating light does not go on

Check: - AC connection to the wall outlet
- power supply output plug to the input receptacle of the turntable.
- power supply output, if no output, replace the fuse inside

... if the turntable does not start and the speed indicating light goes on

Check: - drive belt
- motor connection plug for a broken wire
- drive module for a broken wire
- defective drive module

... if the platter is not parallel with the plinth

Check: - suspension calibration using the suspension gauge

Note: If a relatively important change occured in one particular suspension module, this could be the sign of an improperly seated spring or sorbothane ring, analyze each part carefully prior to calibrating again.

Read: - section How to... calibrate the suspension

... if an even up or down motion cannot be obtained when gently pressing on the record clamp

Check: - leveling of the base
- for phono lead interference with the movement of the suspension. If uncertain, unplug the lead.
- previous topic: ... do if the platter is not parallel with the plinth

... if the speed becomes erratic

Check: - drive belt to make sure it rides in the center of the motor pulley.
- motor pulley height (should be 71 mm (2.800 in.) from the top of the pulley and to the acrylic base).
- lubrication in main bearing
- drive belt for oil contamination
- drive belt for excessive wear
- for damaged or defective main bearing
- for main bearing contamination
- motor connection plug for a broken wire
- drive module for a broken wire
- defective motor
- defective drive module

Note 1: To test bearing damage or contamination remove the drive belt. Inspect the spindle for obvious anomalies at the friction points. Install the platter and spin it gently. Excessive bearing friction will tend to slow down the platter. Since this can happen to various degrees, one way to determine excessive friction is to watch when the platter comes to a stop, too much friction will force the platter to move backwards slightly. Having to replace the drive belt more than once a year could also be a sign of excessive bearing friction.

Note 2: Bearing contamination will be responsible for the formation of circular scratches on the spindle.

... for maintenance

- The blue cloth supplied can be used to clean all the metal parts, acrylic parts and the mat. Always use the cloth dampened with water to dust the acrylic parts. Do not use this cloth to pick up oil spills, keep it for the delicate work.

- Unless contaminated, there will be no need to dismantle the main bearing. If required it is simple to remove it from subchassis by unscrewing the 3 socket head capscrews holding it to the plinth. Keep in mind there is oil in the bearing assembly hold it straight. Since the oil is contaminated, it must be thrown away. Remove the 3 socket head capscrews holding the bottom cover. Clean the thrust pad and the bushing with denatured alcohol using a "Q" tip. Allow a few minutes for the parts to dry. Re-assemble making sure to secure the screws firmly. Do not forget to add the content of one oil vile (2 cc) before installing the platter.

- as a precaution to save the furniture your Delphi sits on, it is advisable to use a folded paper towel under the main bearing for a few weeks in the event of a bearing spillage.

- the drive belt should be replaced yearly for an optimal performance.

We are confident your new Delphi will give you many years of satisfaction. You are now ready for the real and only purpose of all this... to sit down and relax, just listen and enjoy beautiful music.